CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *30 August 1988*

AIR TRANSPORT PROCEDURES TRANSPORT OF PERSHING II WARHEAD SECTION IN SHIPPING AND STORAGE CONTAINER, M620, BY US ARMY HELICOPTERS

This change adds procedures for transport of the M620 container by CH-47 helicopters with the helicopter internal cargo handling system (HICHS) installed.
FM 55-386, 29 July 1983, is changed as follows:
1. New or changed material is indicated by a star.
2. Remove old pages and insert new pages as indicated below:

Remove Pages	*Insert Pages*
i	i
2-1, 2-2	2-1, 2-2
4-5 thru 4-10	4-5 thru 4-10
4-15	4-15 thru 4-19

3. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
Active Army, USAR, ARNG:
To be distributed in accordance with DA Form 12-11A, requirements for Air Transport Procedures—PERSHING II Warhead in M620 and DA Form 12-35, Section III, Authorized Weapon System Literature, Unit Maintenance requirements for Pershing II.

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *7 April 1989*

AIR TRANSPORT PROCEDURES TRANSPORT OF PERSHING II WARHEAD SECTION IN SHIPPING AND STORAGE CONTAINER, M620, BY US ARMY HELICOPTERS

FM 55-386, July 1983, is changed as follows:

1. Remove all pages of Chapter 5 as indicated below:

Remove Pages	*Insert Pages*
i	i
5-1 through 5-5	

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
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Brigadier General, United States Army
The Adjutant General

Distribution:

Active Army, USAR, ARNG: To be distributed in accordance with DA Form 12-11A, requirements for 55-386, Air Transport Procedures—PERSHING II Warhead in M 620.

FIELD MANUAL
NO. 55-386

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *29 July 1983*

AIR TRANSPORT PROCEDURES TRANSPORT OF PERSHING II WARHEAD SECTION IN SHIPPING AND STORAGE CONTAINER, M620 BY US ARMY HELICOPTERS

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
	Purpose and Scope	1-1	1-1
	Reporting of Publication Improvements	1-2	1-1
	Definitions of Warnings, Cautions, and Notes	1-3	1-1
2.	SAFETY AND SECURITY		
	Warnings	2-1	2-1
	Operational Precautions	2-2	2-1
3.	AIR TRANSPORTABILITY AND HANDLING DATA		
	General	3-1	3-1
	Handling Data	3-2	3-1
4.	TRANSPORT INSIDE HELICOPTER CARGO COMPARTMENTS		
	Transport Inside the CH-47 Helicopter	4-1	4-1
	Transport Inside the CH-54 Helicopter Pod	4-2	4-10
5.	**[Deleted]**		
APPENDIX.	REFERENCES		A-1

(Front Cover) CH-47 Helicopter Lifting an M620 Container

☆ U.S. GOVERNMENT PRINTING OFFICE : 1992 - 311-831 (45136)

CHAPTER 1
INTRODUCTION

l-l. Purpose and Scope

a. This manual presents Department of the Army approved procedures for the transport of the Pershing II warhead section, in the M620 shipping and storage container, by US Army helicopters.

NOTE

Throughout this manual, wherever "the M620 container" or "the container" is mentioned, it is meant to be the M620 shipping and storage container with the Pershing II warhead section inside.

b. The transport procedures in this manual apply when one or more M620 containers are transported in the cargo compartment of the CH-47 helicopter, or in the universal military pod attached to the CH-54 helicopter, or as a sling load by the UH-lH, UH-60, CH-47, or CH-54 helicopter. Materials and people needed to prepare, load, tie down, and unload, or rig and derig, the containers are prescribed in this manual.

c. Additional cargo, such as different types of nuclear weapons and/or personnel, within allowable load limits and restrictions prescribed by AR 50-5, may be transported.

d. Where needed, metric equivalents are given, in parentheses, after the US dimensions such as volume and weight. References are listed in the appendix.

1-2. Reporting of Publication Improvements

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be prepared on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded to Commander, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTT-TRC, PO Box 6276, Newport News, VA 23606. Electrically transmitted comments should be addressed to CDRMTMCTEA FT EUSTIS VA//MTT-TRC//.

1–3. Definitions of Warnings, Cautions, and Notes

When used in this manual, warnings, cautions, and notes emphasize important or critical guidance. They are used for the following conditions:

a. Warning. Instructions that, if not followed, could result in injury to or death of personnel.

b. Caution. Instructions that, if not strictly observed, could result in damage to or destruction of equipment.

c. Note. An operating procedure that must be emphasized.

CHAPTER 2
SAFETY AND SECURITY

2-1. Warnings

Personnel performing operations and procedures that are included or implied in this manual will observe the following warnings. Disregard for these warnings could result in injury or death.

a. During logistical transport of nuclear weapons by US Army helicopters, jettisoning is not authorized. During emergency transport by helicopter (chap 5), the in-flight emergency procedures prescribed by the appropriate aircraft operator's manual will apply (paras 4-3 *i* and 4-3 *1,* AR 50-5).

b. Before each nuclear cargo mission, the helicopter commander will comply with AR 50-5, AR 50-5-1, and AR 95-27. The commander will know the safety, security, and technical aspects of the cargo that may affect air transport. Flights will be planned so as to avoid built-up and heavily populated areas.

c. When the M620 container is transported in the CH-54 helicopter pod, the pod will be secured to the helicopter so that it cannot be jettisoned. Procedures for securing the pod so that it cannot be jettisoned are in TM 55-1520-217-10/1 and TM 55-1520-217-10/2.

d. Ordnance support channels must be consulted for a determination of compatibility of any other nuclear weapons or other cargo (as authorized by chap 4, AR 50-5; chap 1, AR 55-203; and FM 100-50) for transport with the Pershing II warhead section. Information on compatibility is in TM 39–45–5lC, which is distributed to major headquarters and to direct support and general support levels. Restrictions listed in TM 39–20–7 will not be exceeded when other types of nuclear weapons are transported with the warhead section. Procedures for units with a nuclear mission and operating under combat conditions are given in FM 100-50.

e. The M620 container will be loaded and tied down as prescribed in this manual, except that it may be repositioned for helicopter operational reasons or for the loading of additional nuclear weapons or other cargo and/or personnel. If a location other than that shown in this manual is used, the helicopter commander will ensure that:

(1) The number and load capacity of tiedown devices are as prescribed in this manual.

(2) Container tiedowns are secured to helicopter tiedown fittings in the same pattern and at the same angles as shown in the tiedown diagrams in this manual. Required restraint will be provided when the patterns shown in this manual are followed.

(3) The requirements given in TM 39-20-7 and TM 39-45-51A are satisfied.

2-2. Operational Precautions

The following operational precautions will be observed during loading, rigging, tieing down, transporting, and unloading of the M620 container.

★ *a.* The CGU–1/B tiedown device (NSN 1670-00–725-1437) and the web-strap tiedown (NSN 5340-01-089-4997) have a rated strength of 5,000 pounds. When either of the tiedown assemblies is used to secure the items described in this manual, the assembly is limited to a useful life of 36 months. The 36-month period will start when the using organization unpackages the tiedowns. At that time, the tiedowns will be marked with stencil ink TT-I-1795, in any contrasting color, to show the unpacking date (month and year), in at least ½-inch-high letters near the hook end of the strap. When the 36-month period expires, the tiedowns will be marked with a 2-inch-wide band on both sides of the strap, near the unpacking date, with No. 33538 yellow stencil ink (TT-I-1795) or enamel (TT-E-516).

★ *b.* The tiedown strap (NSN 5340-01–204–3009) also may be used to secure the items in this manual. Although the 36-month useful-life limit does not apply to this tiedown strap, the straps will be marked with the unpacking date (month and year) when used.

c. Before each usage, tiedowns and cargo slings will be inspected for burns, tears, punctures, cuts, caustic damage, oil or grease contamination, and fraying or broken stitches. Also, their metal items will be inspected for corrosion, cracks, distortion, or improper operation. If any of these conditions exist, the tiedowns or slings must be replaced. No strength testing of tiedowns or slings will be made. Other storage, inspection, and maintenance criteria for tiedowns and slings are prescribed in FM 55-450-1 (app).

d. Serviceable web-strap tiedown assemblies in use more than 36 months may be used to secure nuclear weapon trainers, training devices, and other nonnuclear cargo (para 4-3 *h,* AR 50-5). However, when the M620 container or other nuclear weapon or component is transported in the helicopter or pod, all tiedowns, excluding the NSN 5340-01-204-3009 and including those used to secure weapon trainers, training devices, and

other cargo, must meet the 36-month useful-life criterion.

★ *e.* Attach tiedown straps to cargo and to tiedown fittings and rotate the take-up spool until no metal on the spool shows and the strap has made contact with itself. Tension each strap to form at least ½ wrap but not more than 1-½ wraps on the take-up spool of the tensioning ratchet. Tighten each tiedown, applying equal tension throughout the tiedown arrangement to prevent movement of the cargo. After tensioning is completed, the take-up spool locking latch must be checked to ensure that it is fully seated at both ends of the spool in the matching locking notches. During flight, tiedowns will be checked and tightened as necessary.

f. Security and safety procedures, as established by pertinent publications (app), apply during all phases of air transport. All operations described here will be in strict compliance with AR 50-5, AR 50-5-1, TM 9-1115-386-12 & P, and FM 100-50.

g. The high noise level of helicopter engines and auxiliary power units can cause permanent damage to hearing. All personnel working near the helicopters will wear hearing protectors; others will avoid entering the noise danger area. Also, sling-load hookup personnel will wear goggles and protective headgear (hard hat, steel helmet, or flight helmet) and will use a static electricity discharge probe (NSN 1670–00-574-8044) or a locally made probe.

h. Passenger seats must be available for the minimum-essential security personnel (courier officer and guard).

i. Helicopters and universal military pods will be searched and inspected, by the helicopter commander, for unauthorized personnel and equipment and any possible sabotage. Entry controls will be established, by the courier officer, to maintain security integrity until completion of the nuclear mission.

CHAPTER 3
AIR TRANSPORTABILITY AND HANDLING DATA

3-1. General

a. This chapter identifies the M620 container (fig 3-1) and the limitations for its transport by helicopter.

b. Approximate weight and dimensions of the M620 container and Pershing II warhead section are as follows:

Length	Width	Height	Weight
97.75 in (2.48 m)	47.4 in (1.20m)	51.75 in (1.31 m)	2,100 lbs (952.5 kg)

Each of the four container skids is 18 inches (0.46m) long and 3.5 inches (0. 09 m) wide. The container can be lifted by forklift truck from either side or end. The container cover is secured to the base with 32 T-bolt assemblies, and the four lift and tiedown handles are located on the sides of the container base, 4.75 inches (0. 12 m) from the ends. The front end of the container has the pressure equalizing valves.

c. The container may be faced either forward or aft in the helicopter, and the container center of balance is about 48.86 inches (1.24 m) from either end and is marked on the container.

d. The M620 containers will be transported inside the helicopter except in an emergency (chap 5). In an emergency, containers may be transported as a sling load. The determination that sling loading is justified will be made by the theater commander.

3–2. Handing Data

a. The M620 container is too large for transport inside UH–1 or UH–60A helicopters. Typical cargo helicopter loads are shown in chapter 4.

b. Personnel dosimetry (film badge) or special radiological handling procedures are not required, unless otherwise specified, for personnel engaged in operations described in this manual.

c. The bolts securing the container cover to the base must be tight, and the container must be inspected for damage other than minor scratches and abrasions. If the container is damaged to the extent that its contents or functions might be affected, security personnel will notify the support unit and submit a report in accordance with chapter 5, AR 50-5.

d. The helicopter center of balance must be computed for all loads, to include number and location of nuclear-weapon security personnel (two-man concept).

e. Four persons can prepare, load, and tie down each container in the helicopter in about 30 minutes. Four persons can unload each container in about 15 minutes.

CAUTION

The M620 container must not be placed directly on the floor of a helicopter. Because of the concentrated loads on each container skid, shoring must be used under the skids.

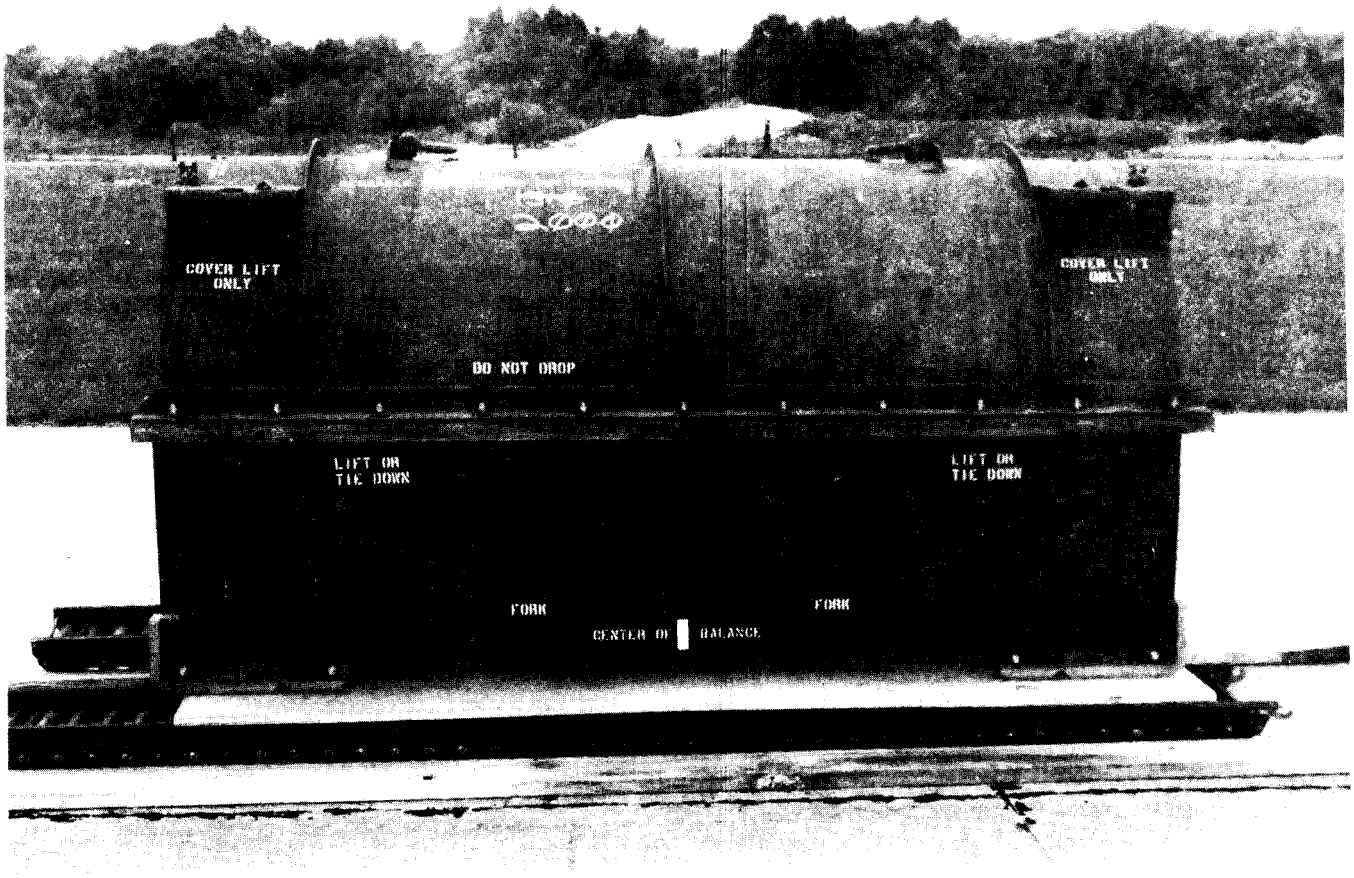


Figure 3–1. Shipping and storage container, M620, for the Pershing II warhead section.

CHAPTER 4
TRANSPORT INSIDE HELICOPTER CARGO COMPARTMENTS

4-1. Transport Inside the CH–47 Helicopter

a. Materials and Procedures for Transporting One M620 Container Inside a CH-47 Helicopter.

NOTE

Plywood may be used as parking and rolling shoring in place of the 2- by 12-inch lumber prescribed in this chapter. If plywood shoring is used, it must be at least ¾-inch thick and wide enough to accommodate the conveyor rollers.

(1) *Materials Required.*

(a) Parking shoring: two pieces of 2- by 12-inch by 12-foot lumber.

(b) Rolling shoring: four pieces of 2- by 12-inch by 8-foot lumber.

(c) Bridge shoring: one sheet of ¾-inch by 4- by 8-foot plywood.

(d) Blocking shoring: twelve pieces of 2- by 12-inch by 2-foot lumber.

(e) Wheeled or roller conveyor: two sections, either 8- or 10-foot (NSN 3910–00–903–1303), or equivalent.

NOTE

If wheeled or roller conveyors are not available, the M620 container may be winched on its skids over the shoring.

CAUTION

If the container is to be winched on its skids, rolling shoring must be placed on the auxiliary loading ramps and on the cargo ramp.

(f) Restraint straps: two CGU-1/B tiedown straps or equivalent.

(g) Chains: two of the type used with the C-2 tiedown device, 10,000-pound capacity, or equivalent.

(h) Forklift or crane: one, load-tested, 6,000-pound capacity.

(2) Loading.

(a) Position rolling shoring (use parking shoring described in (1) *(a)* above), blocking shoring, and the auxiliary loading ramps to align with the container skids, as shown in figures 4-1 and 4-2.

(b) Position plywood bridge shoring and conveyors, rollers down, as shown in figure 4-3, then position container on the plywood shoring.

NOTE

A single-width row of the 2- by 12-inch rolling and parking shoring is wide enough for loading the M620 container. A double-width row, as shown in figures 4-1 and 4-2, may be used if available.

(c) Connect a CGU-1/B tiedown strap to each forward container-lifting handle and to the aft end of the conveyors, to prevent the container from being pulled off the conveyors during winching (fig 4-4).

(d) Form a towing bridle by attaching two chains to the forward container-lifting handles (fig 4-5). Attach the helicopter-winch cable hook to the bridle, and safety tie the hook to prevent accidental release. If the hook has a serviceable safety latch, safety tying is not required.

(e) Place a wood block under the cable at the helicopter ramp hinge to protect the helicopter floor.

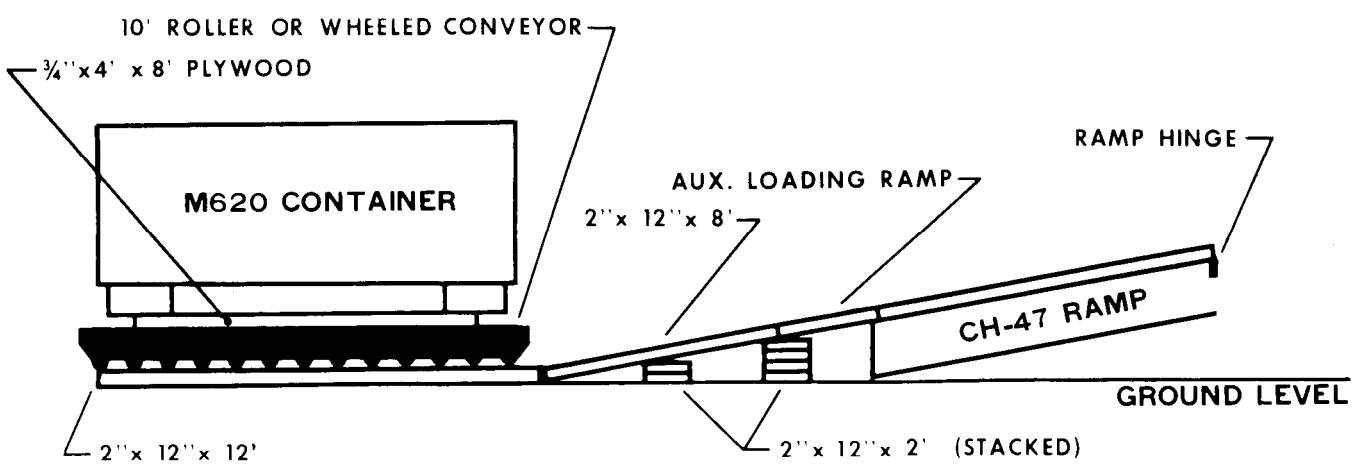


Figure 4–1. Side view schematic of rolling and blocking shoring positioned for loading M620 container (PII) into a CH–47 helicopter.

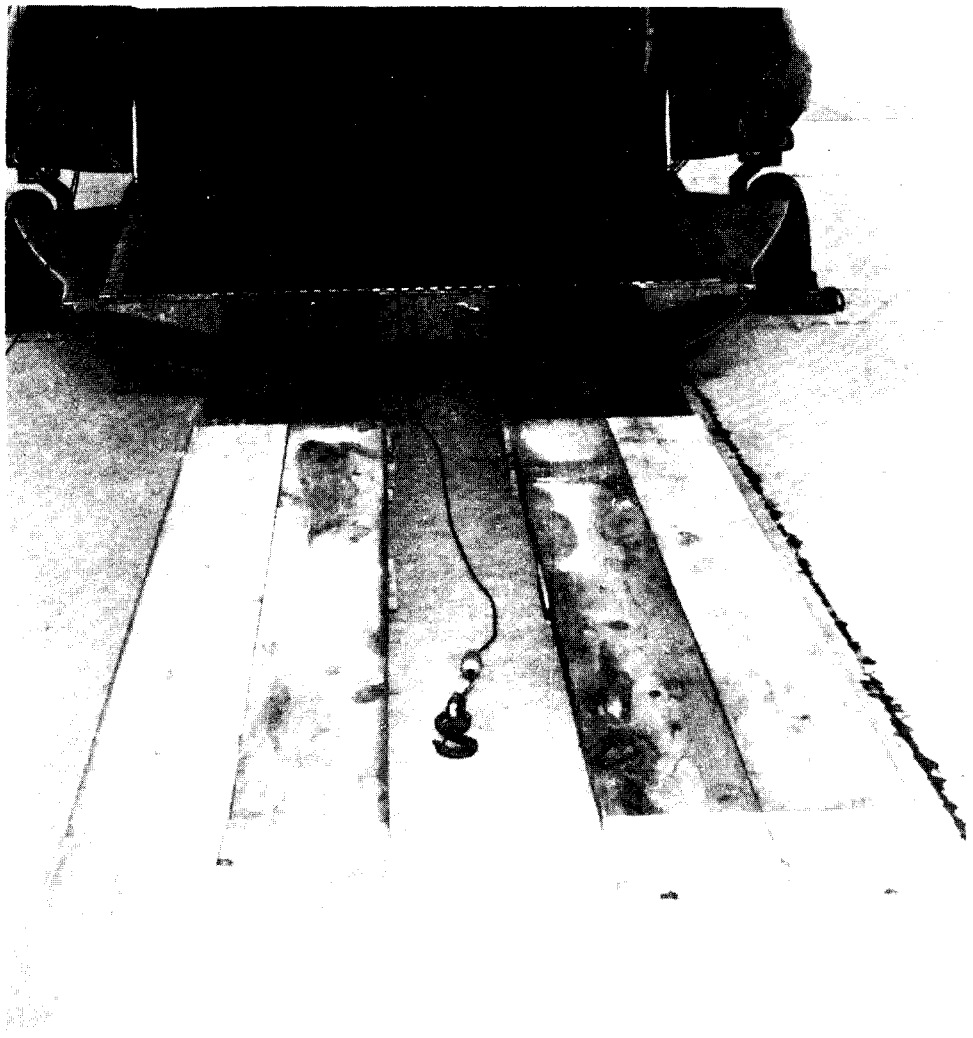


Figure 4–2. Shoring, auxiliary loading ramps, and cargo ramp positioned for loading an M620 container into a CH–47 helicopter. A double row of shoring, as shown here, is not required but may be used if available.

Figure 4–3. M620 container on shoring and roller conveyors.

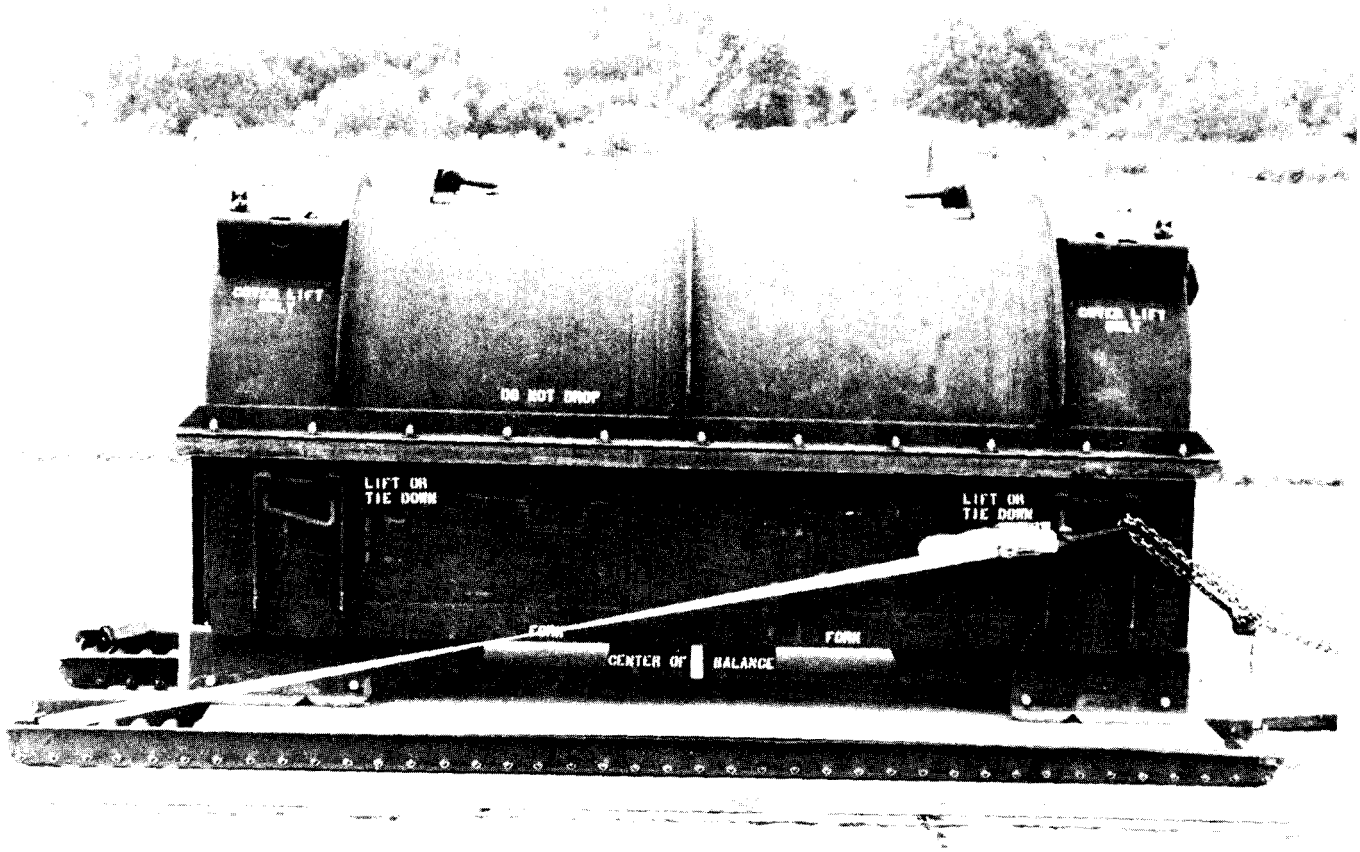


Figure 4–4. Tiedown straps attached to prevent container from being pulled off the conveyors during winching.

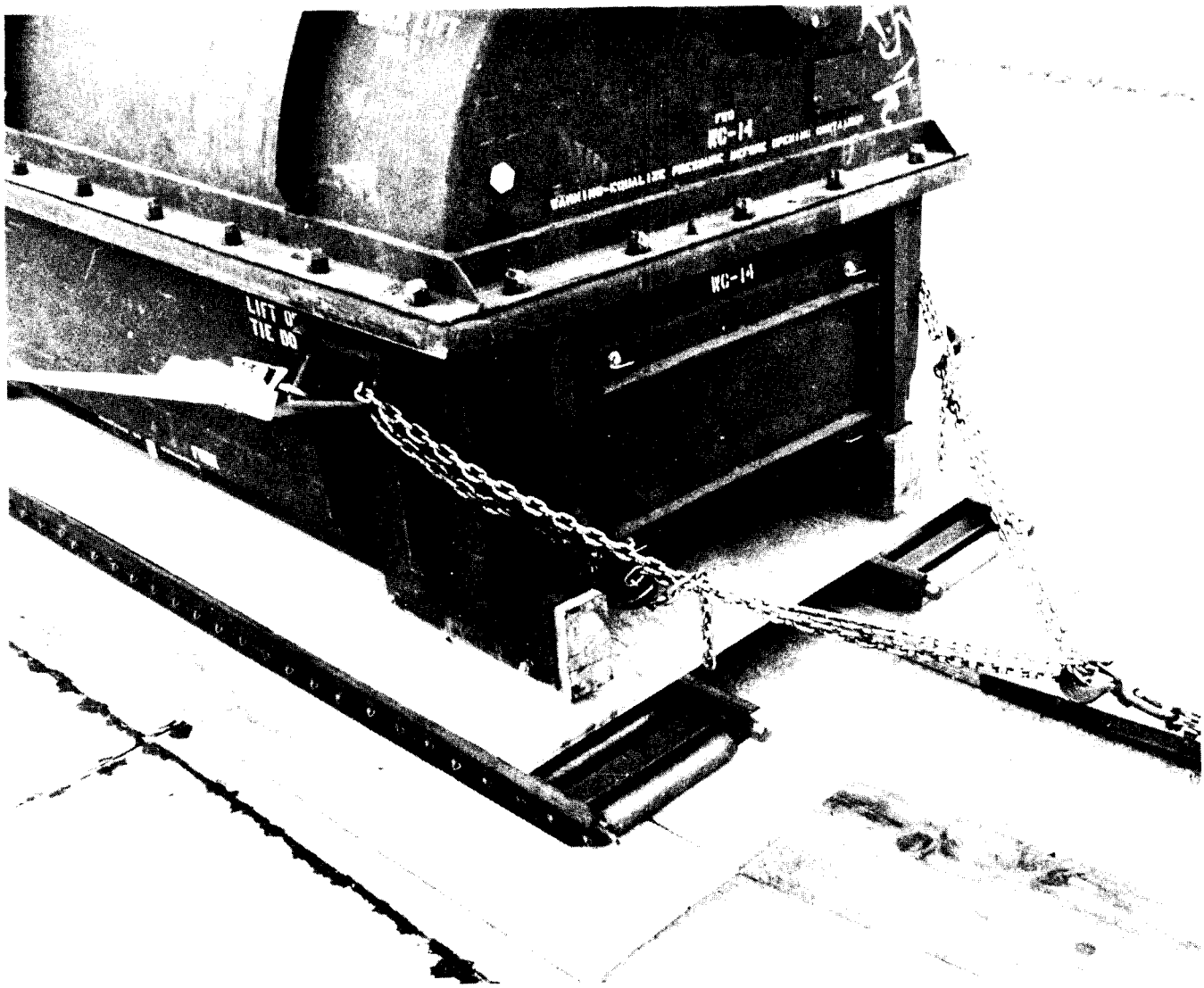


Figure 4–5. Chain towing bridle attached to helicopter winch.

(f) Position guides to adjust shoring, observe clearances, and signal winch operator as necessary.

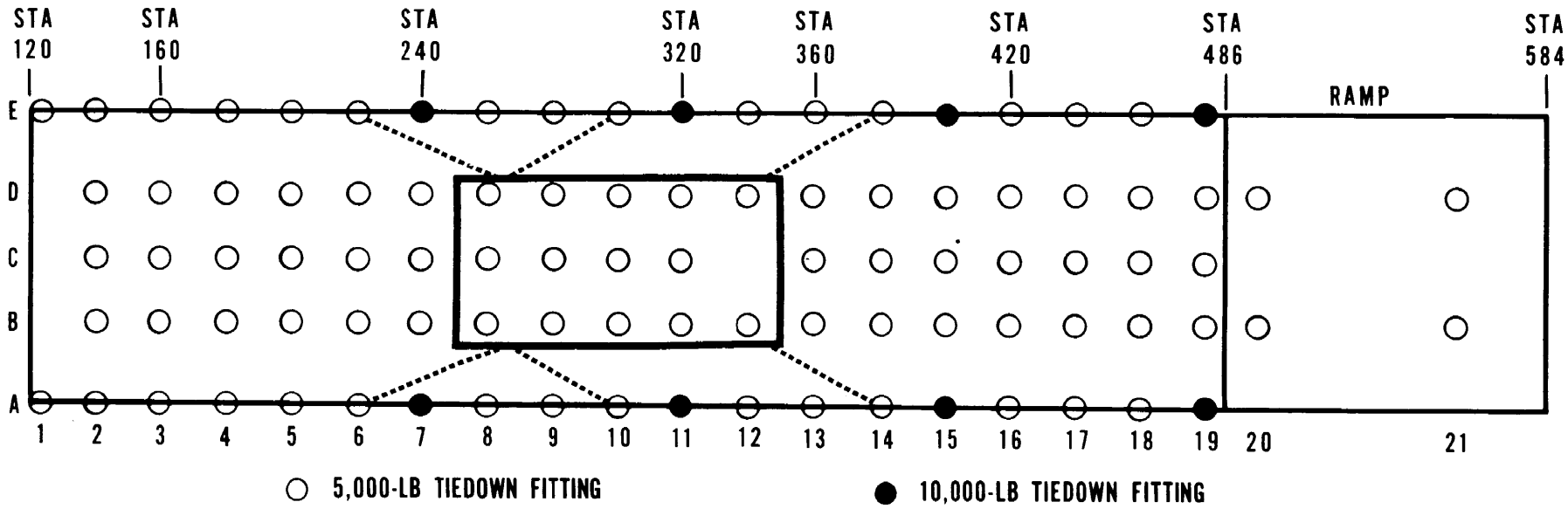
(g) Winch container into helicopter: as the container nears the top of' the cargo ramp, reposition the rolling and parking shoring to the inside of the helicopter. Align the 8-foot rolling shoring at top of the cargo ramp with the 12-foot parking shoring positioned at the tiedown location.

(h) Winch container to the tiedown location, and attach fore and aft restraints to container.

(i) Release tension on the winch cable. The bridle and cable may remain attached to the container for use in unloading.

(j) Tie down the container (on the conveyors and shoring) according to figure 4-6 and table 4-1. If the container tiedown/lift handles are too large for direct attachment of the tiedowm snaphook, place a clevis on each container tiedown handle and attach the tiedown snaphook to the clevis.

(k) Load materials required for unloading, and tie them down as directed by the helicopter commander.



NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360

ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
	M620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	250	303	2100
	CONTAINER					

Figure 4–6. Tiedown diagram for one M620 container in a CH–47 helicopter.

★**Table 4–1. Tiedown Data for One M620 Container in a CH–47 Helicopter**

Tiedown fitting		Tiedown device*		
desig-nation	capacity in 1,000 lb	Type	capacity in 1,000 lb	Attach to item
A6	5	CGU–1/B	5	Left front tiedown/lift handle
E6	5	CGU–1/B	5	Right front tiedown/lift handle
A10	5	CGU–1/B	5	Left front tiedown/lift handle
E10	5	CGU–1/B	5	Right front tiedown/lift handle
A14	5	CGU–1/B	5	Left rear tiedown/lift handle
E14	5	CGU–1/B	5	Right rear tiedown/lift handle

*All authorized tiedown straps are identified in chapter 2, paragraphs 2–2*a* and *b*. MB–1 chain assemblies may also be used.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch will be used as a safety restraint when the container is manhandled from the helicopter. Care must be taken when the container passes over the cargo ramp hinge. The container may be manhandled onto the cargo ramp when the ramp is at the floor-level position. The ramp, with container, is then lowered onto the shoring placed outside the helicopter.

b. Materials and Procedures for Transporting Two M620 Containers Inside a CH-47 Helicopter.

(1) *Materials Required.*

(a) parking shoring: four pieces of 2- by 12-inch by 12-foot lumber.

(b) Rolling shoring: two pieces of 2- by 12-inch by 12-foot lumber, and four pieces of 2- by 12-inch by 8-foot lumber.

(c) Bridge shoring: two sheets of 3/4-inch by 4- by 8-foot plywood.

(d) Blocking shoring: twelve pieces of 2- by 12-inch by 2-foot lumber.

(e) Wheeled or roller conveyors: two sections, either 8- or 10-foot (NSN 3910-00-903-1303), or equivalent, and four pieces of 2- by 12-inch by 8-foot lumber.

NOTE

If wheeled or roller conveyors are not available, the M620 containers may be winched on their skids over the shoring.

CAUTION

If the containers are to be winched on their skids, rolling shoring must be placed on the auxiliary loading ramps and on the cargo ramp.

(f) Restraint straps: four CGU-1/B tiedown straps, or equivalent.

(g) Chains: four of the type used with the MB–1 tiedown device, 10,000-pound capacity, or equivalent.

(h) Forklift or crane: one, load-tested, 6,000-pound capacity.

(2) *Loading.*

(a) Position rolling shoring and the auxiliary loading ramps to align with the container skids, as shown in figures 4-1 and 4-2. Place four pieces of 12-foot parking shoring inside the helicopter.

(b) Follow procedures in paragraphs 4-l *a* (2) *(b)* through *(f).*

(c) Winch container into helicopter; as the container nears the top of the cargo ramp, reposition the 8-foot shoring to the inside of the helicopter if required to reach to the parking shoring.

(d) Winch container to the tiedown location, and attach fore and aft restraints to container.

(e) Disconnect the winch cable hook, pass the hook beneath the first container, and attach it to the bridle on the second container.

(f) Load the second container in the same manner as prescribed for the first container.

(g) Release tension on the winch cable. The bridle and cable may remain attached to the second container for unloading.

(h) Tie down the containers (on the conveyors and shoring) according to figure 4-7 and table 4-2. If the container tiedown/lift handles are too large for direct attachment of the tiedown snaphook, place a clevis on each container tiedown handle and attach the tiedown snaphook to the clevis.

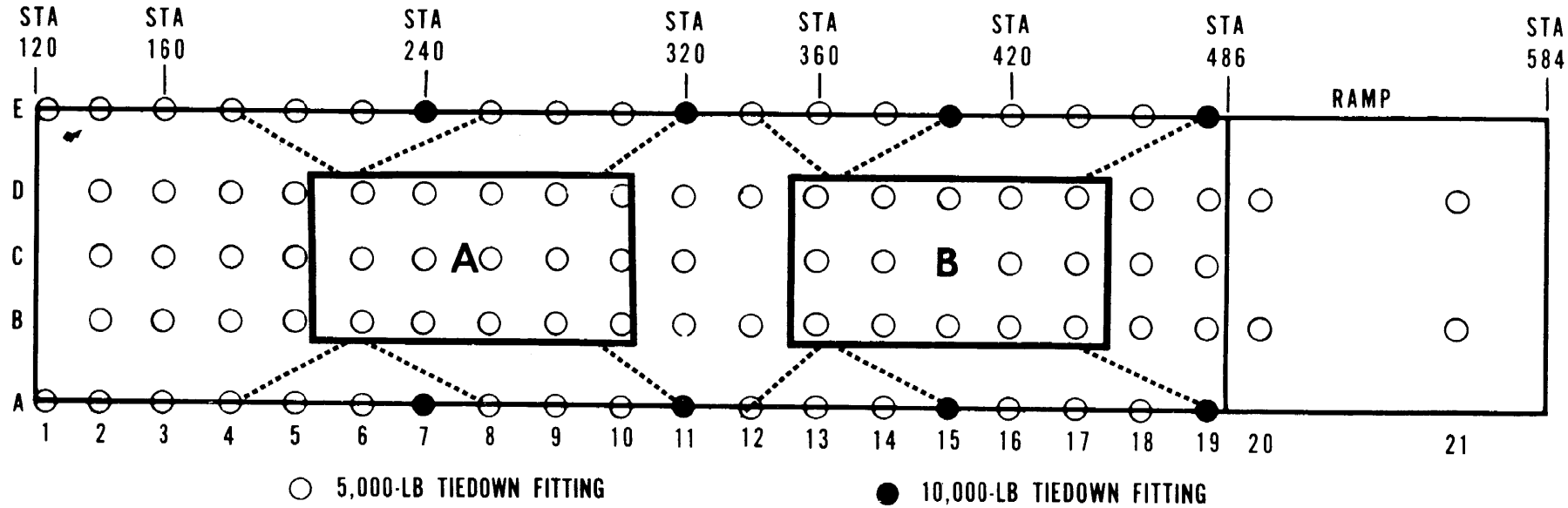
(i) Load materials required for unloading, and tie them down as directed by the helicopter commander.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch will be used as a safety restraint when the container is manhandled from the helicopter. Care must be taken when the container passes over the cargo ramp hinge. The container may be manhandled onto the cargo ramp when the ramp is at the floor-level position. The ramp, with container, is then lowered onto the shoring placed outside the helicopter.

c. Materials and Procedures for Transporting Three M620 Containers Inside a CH-47 Helicopter.

(1) *Materials Required.*

(a) Parking shoring: two pieces of 2- by



NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360

ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
A	M620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	200	250	2100
	CONTAINER					
B	M620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	350	400	2100
	CONTAINER					

Figure 4–7. Tiedown diagram for two M620 containers in a CH–47 helicopter.

★**Table 4–2. Tiedown Data for Two M620 Containers in a CH–47 Helicopter**

	Tiedown fitting		Tiedown device*		
Item	desig-nation	capacity in 1,000 lb	type	capacity in 1,000 lb	Attach to item
A	A4	5	CGU–1/B	5	Left front tiedown/lift handle
	E4	5	CGU–1/B	5	Right front tiedown/lift handle
	A8	5	CGU–1/B	5	Left front tiedown/lift handle
	E8	5	CGU–1/B	5	Right front tiedown/lift handle
	A11	10	CGU–1/B	5	Left rear tiedown/lift handle
	E11	10	CGU–1/B	5	Right rear tiedown/lift handle
B	A12	5	CGU–1/B	5	Left front tiedown/lift handle
	E12	5	CGU–1/B	5	Right front tiedown/lift handle
	A15	10	CGU–1/B	5	Left front tiedown/lift handle
	E15	10	CGU–1/B	5	Right front tiedown/lift handle
	A19	10	CGU–1/B	5	Left rear tiedown/lift handle
	E19	10	CGU–1/B	5	Right rear tiedown/lift handle

*All authorized tiedown straps are identified in chapter 2, paragraphs 2–2*a* and *b*. MB–1 chain assemblies may also be used.

12-inch by 12-foot lumber and four pieces of 2- by 12-inch by 8-foot lumber.

(b) Rolling shoring: two pieces of 2- by 12-inch by 12-foot lumber and four pieces of 2- by 12-inch by 8-foot lumber.

(c) Bridge shoring: three sheets of 3/4-inch by 4- by 8-foot plywood.

(d) Blocking shoring: twelve pieces of 2-by 12-inch by 2-foot lumber.

(e) Wheeled or roller conveyors: six sections, either 8- or 10-foot (NSN 3910–00–903–1303), or equivalent.

NOTE

If wheeled or roller conveyors are not available, the M620 containers may be winched on their skids over the shoring.

CAUTION

If the containers are to be winched on their skids, rolling shoring must be placed on the auxiliary loading ramps and on the cargo ramp.

(f) Restraint straps: six CGU-UB tiedown straps or, equivalent.

(g) Chains: four of the type used with the MB-1 tiedown device, 10,000-pound capacity, or equivalent.

(h) Forklift or crane: one, load-tested, 6,000-pound capacity.

(2) *Loading.*

(a) Position rolling shoring and the auxiliary loading ramps to align with the container skids, as shown in figures 4-1 and 4-2. Place six pieces of parking shoring inside the helicopter.

(b) FO11OW procedures in paragraphs 4-1 *a* (2) *(b)* through *(f).*

(c) Winch container into the helicopter to the tiedown location shown in figure 4-8, and attach fore and aft restraints to container.

(d) Disconnect the winch cable hook, pass the hook beneath the first container, and attach it to the bridle on the second container.

(e) Load the second container in the same manner as prescribed for the first container.

(f) Disconnect the winch cable hook, pass the hook beneath the second container, and attach it to the bridle on the third container.

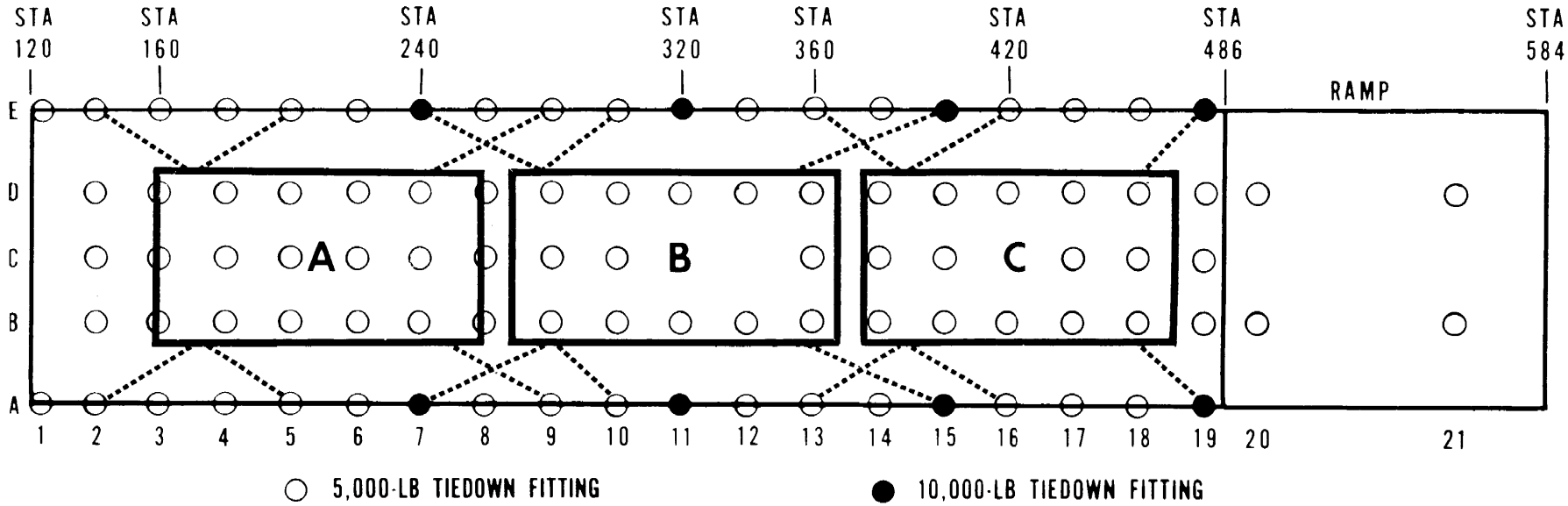
(g) Load the third container in the same manner as prescribed for the first and second containers.

(h) Release the tension on the winch cable. The bridle and cable may remain attached to the third container for unloading.

(i) Tie down the containers (on the conveyors and shoring) according to figure 4-8 and table 4-3. If the container tiedown/lift handles are too large for direct attachment of the tiedown snaphook, place a clevis on each container tiedown handle and attach the tiedown snaphook to the clevis.

(j) Load materials required for unloading, and tie them down as directed by the helicopter commander.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch will be used as a safety restraint when the container is manhandled from the helicopter. Care must be taken when the container passes over the cargo ramp hinge. The container may be manhandled onto the cargo ramp when the ramp is at the floor-level position. The ramp, with container, is then lowered onto the shoring placed outside the helicopter.



NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360

ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
A	M 620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	160	210	2100
	CONTAINER					
B	M 620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	270	320	2100
	CONTAINER					
C	M 620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	380	430	2100
	CONTAINER					

Figure 4–8. Tiedown diagram for three M620 containers in a CH–47 helicopter.

★**Table 4–3. Tiedown Data for Three M620 Containers in a CH–47 Helicopter**

Item	*Tiedown fitting*		*Tiedown device**		
	desig-nation	capacity in 1,000 lb	type	capacity in 1,000 lb	Attach to item
A	A2	5	CGU–1/B	5	Left front tiedown/lift handle
	E2	5	CGU–1/B	5	Right front tiedown/lift handle
	A5	5	CGU–1/B	5	Left front tiedown/lift handle
	E5	5	CGU–1/B	5	Right front tiedown/lift handle
	A9	5	CGU–1/B	5	Left rear tiedown/lift handle
	E9	5	CGU–1/B	5	Right rear tiedown/lift handle
B	A7	10	CGU–1/B	5	Left front tiedown/lift handle
	E7	10	CGU–1/B	5	Right front tiedown/lift handle
	A10	5	CGU–1/B	5	Left front tiedown/lift handle
	E10	5	CGU–1/B	5	Right front tiedown/lift handle
	A15	10	CGU–1/B	5	Left rear tiedown/lift handle
	E15	10	CGU–1/B	5	Right rear tiedown/lift handle
C	A13	5	CGU–1/B	5	Left front tiedown/lift handle
	E13	5	CGU–1/B	5	Right front tiedown/lift handle
	A16	5	CGU–1/B	5	Left front tiedown/lift handle
	E16	5	CGU–1/B	5	Right front tiedown/lift handle
	A19	10	CGU–1/B	5	Left rear tiedown/lift handle
	E19	10	CGU–1/B	5	Right rear tiedown/lift handle

*All authorized tiedown straps are identified in chapter 2, paragraphs 2–2*a* and *b*. MB–1 chain assemblies may also be used.

4-2. Transport Inside the CH-54 Helicopter Pod

a. Materials and Procedures for Transporting One M620 Container Inside a CH–54 Helicopter Pod.

NOTE

Plywood may be used as parking and rolling shoring in place of the 2- by 12-inch lumber prescribed in this chapter. If plywood shoring is used, it must be at least 3/4-inch thick and wide enough to accommodate the conveyor rollers.

(1) *Materials Required.*

(a) Parking shoring: four pieces of 2- by 12-inch by 12-foot lumber.

(b) Rolling shoring: two pieces of 2- by 1.2-inch by 12-foot lumber.

(c) Bridge shoring: one sheet of 3/4-inch by 4- by 8-foot plywood.

(d) Blocking shoring: about 36 pieces of 2- by 12- by 12-inch lumber.

(e) Wheeled or roller conveyor: two sections, 8- or 10-foot (NSN 3910-00-903-1303), or equivalent.

NOTE

If wheeled or roller conveyors are not available, the M620 container may be winched on its skids over the shoring.

(f) Restraint straps: two CGU-1/B tiedown devices, or equivalent.

(g) Chains: four of the type used with MB-1 tiedown device, 10,000-pound capacity, or equivalent.

(h) Forklift or crane: one, load-tested, 6,000-pound minimum capacity.

(i) Truck: 2½-ton, with winch, or suitable substitute.

(j) Snatch block, tackle, single sheave: two NSN 3940–00–239-0372, or equivalent.

(k) Plywood: two pieces, ½-inch by 2- by 2-foot, or equivalent.

(2) *Loading.*

(a) Position shoring and conveyors, rollers down. Position plywood bridge shoring on conveyors, and place M620 container on the plywood shoring.

(b) Position blocking shoring under the helicopter pod ramp. Position shoring on the pod ramp to align with the roller conveyors. Place parking shoring inside the helicopter pod.

(c) Connect a CGU-1/B tiedown strap to each forward container-lifting handle and to aft end

of the conveyors, to prevent container from being pulled off the conveyors during loading (fig 4-4).

(d) Form a bridle by attaching two chains to the forward container-lifting handles (fig 4-5).

(e) With the tiedown chains, attach snatch blocks to pod tiedown fittings, Al and D1. Adjust chains to insure that container is winched down the centerline of the pod. Place plywood pieces beneath snatch blocks to protect floor. Winching diagram is shown in figure 4-9.

(f) Pass towing cable through opened snatch blocks, attach cable hook to bridle on container, and safety-tie the hook to prevent accidental release. If the hook is equipped with a serviceable safety latch, safety-tying the hook is not required. Close and lock the snatch block. Place wood blocks beneath towing cable to protect pod floor.

(g) Position guides to adjust shoring, observe clearances and winching cable, and signal winch operator as necessary.

(h) Winch container into pod: as the container nears the top of the ramp, reposition the rolling shoring for use as parking shoring.

(i) Winch container to its tiedown location, and apply fore and aft restraints to container,

(j) Tie down the container (on the conveyors and shoring) according to figure 4-10 and table 4-4. If the container tiedown/lift handles are too large for direct attachment of the tiedown snaphook, place a clevis on each container tiedown handle and attach the tiedown snaphook to the clevis.

(k) Load materials required for unloading, and tie them down as directed by the helicopter commander.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The winching cable will be used as a safety restraint when container is manhandled from the pod. Care must be exercised when container passes over ramp hinge.

b. Materials and Procedures for Transporting Two M620 Containers Inside a CH-54 Helicopter.

(1) *Materials.*

(a) Parking shoring: four pieces of 2- by 12-inch by 12-foot lumber.

(b) Rolling shoring: four pieces of 2- by 12-inch by 12-foot lumber.

(c) Bridge shoring: two sheets of ¾-inch by 4- by 8-foot plywood.

(d) Blocking shoring: about 36 pieces of 2- by 12- by 12-inch lumber.

(e) Wheeled or roller conveyor: four sections, 8- or 10-foot (NSN 3910-00–903–1303), or equivalent.

(f) Restraint straps: four CGU-1/B tiedown devices or equivalent.

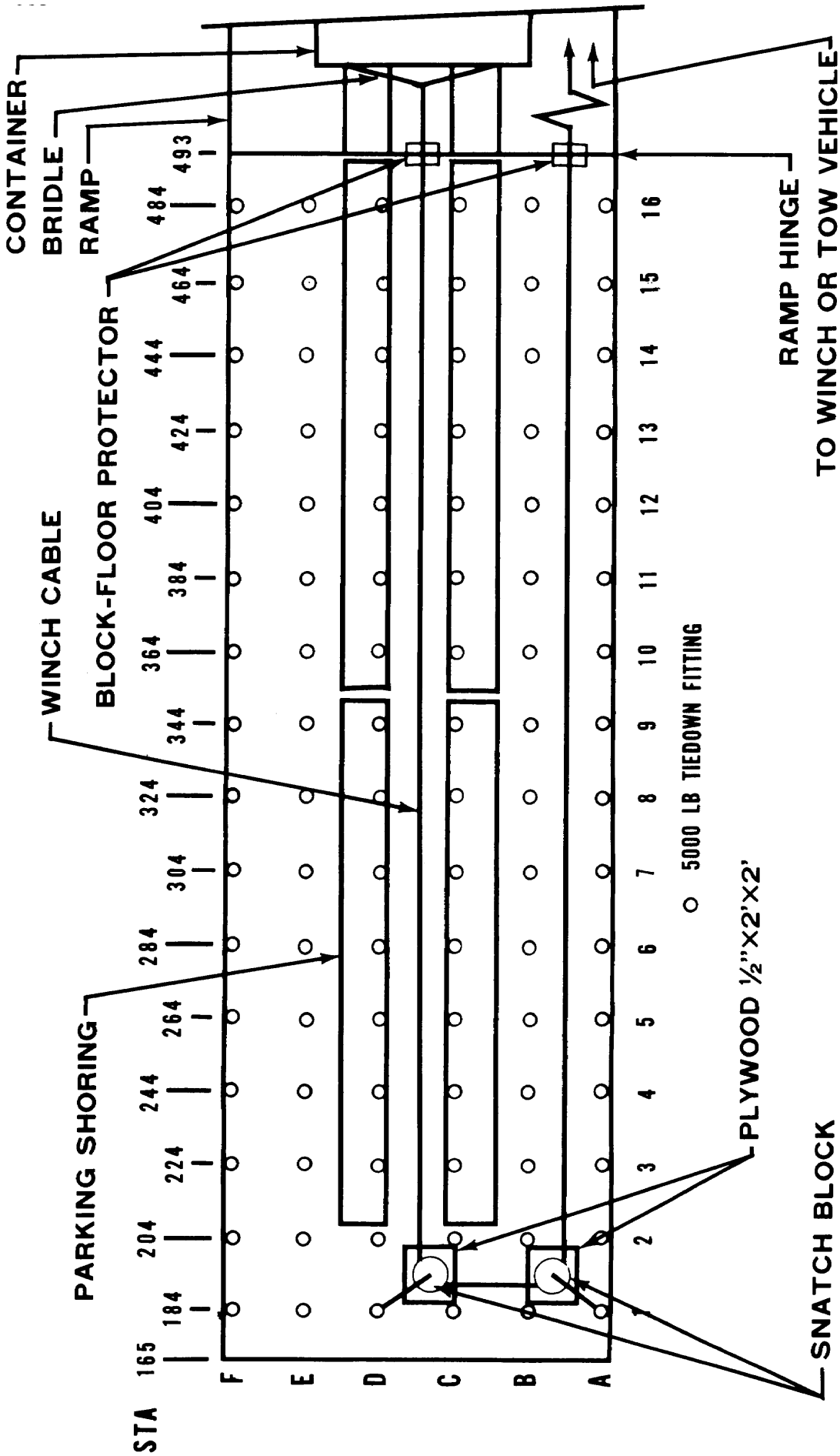
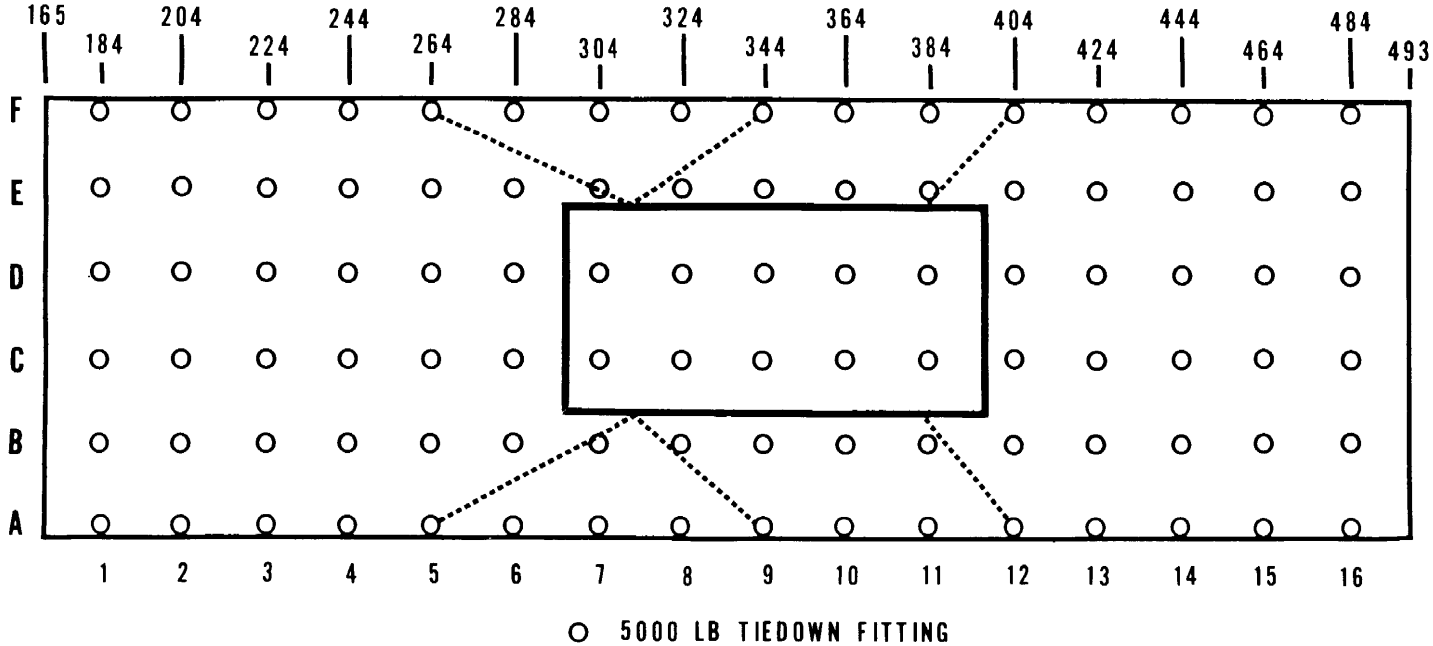


Figure 4–9. Winching diagram for loading M620 container into CH–54 helicopter pod.



ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
	XM620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	295	345	2100
	CONTAINER					

Figure 4–10. Tiedown diagram for one M620 container in CH–54 helicopter pod.

Table 4–4. Tiedown Data for One M620 Container in CH–54 Helicopter Pod

Tiedown fitting		*Tiedown device*		
desig-nation	capacity in 1,000 lb	type	capacity in 1,000 lb	Attach to item
A5	5	CGU–1/B	5	Left front tiedown/lift handle
F5	5	CGU–1/B	5	Right front tiedown/lift handle
A9	5	CGU–1/B	5	Left front tiedown/lift handle
F9	5	GU–1/B	5	Right front tiedown/lift handle
A12	5	CGU–1/B	5	Left rear tiedown/lift handle
F12	5	CGU–1/B	5	Right rear tiedown/lift handle

(g) Chains: six of the type used with the C-2 tiedown device, 10,000-pound capacity, or equivalent.

(h) Forklift or crane: one, load-tested, 6,000-pound minimum capacity.

(i) Truck: 2½-ton, with winch, or suitable substitute.

(j) Snatch block, tackle, single sheave: two, NSN 3940–00–239–0372, or equivalent.

(k) Plywood: two pieces, ½-inch by 2- by 2-foot, or equivalent.

(2) *Loading.*

(a) Follow procedures in paragraphs *4-2a* (2) *(a)* through *(i).*

(b) Disconnect winch cable hook, pass hook beneath first container, and attach it to bridle on second container.

(c) Load second containers prescribed for first container.

(d) Release tension on winch cable. The bridle and cable may remain attached to the aft container for unloading.

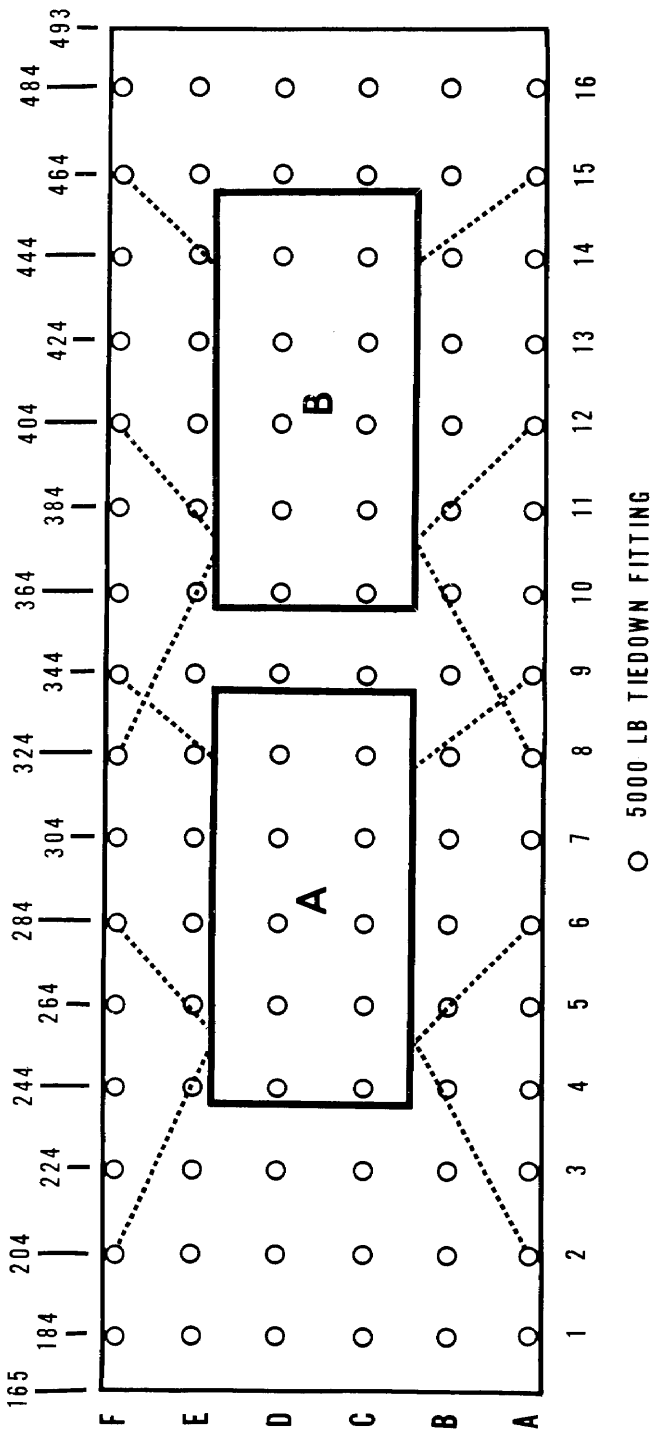
(e) Tie down the containers (on the conveyors and shoring) in accordance with figure 4-11 and table 4-5. If container tiedown/lift handles are too large for direct attachment to the snaphook on the tiedown, use a clevis to make the attachment.

(f) Load materials required for unloading, and tie them down as directed by the helicopter commander.

Table 4–5. Tiedown Data for Two M620 Containers in CH–54 Helicopter Pod

	Tiedown fitting		*Tiedown device*		
Item	desig-nation	capacity in 1,000 lb	type	capacity in 1,000 lb	Attach to Item
A	A2	5	CGU–1/B	5	Left front tiedown/lift handle
	F2	5	CGU–1/B	5	Right front tiedown/lift handle
	A6	5	CGU–1/B	5	Left front tiedown/lift handle
	F6	5	CGU–1/B	5	Right front tiedown/lift handle
	A9	5	CGU–1/B	5	Left rear tiedown/lift handle
	F9	5	CGU–1/B	5	Right rear tiedown/lift handle
B	A8	5	CGU–1/B	5	Left front tiedown/lift handle
	F8	5	CGU–1/B	5	Right front tiedown/lift handle
	A12	5	CGU–1/B	5	Left front tiedown/lift handle
	F12	5	CGU–1/B	5	Right front tiedown/lift handle
	A15	5	CGU–1/B	5	Left rear tiedown/lift handle
	F15	5	CGU–1/B	5	Right rear tiedown/lift handle

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch will be used as a safety restraint when the container is being manhandled from the helicopter. Care must be taken when the container passes over the helicopter ramp hinge. The container may also be manhandled onto the cargo ramp when the cargo ramp is at the floor-level position. The cargo ramp, with container, is then lowered onto the shoring placed outside the helicopter.



ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
A	M620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	240	290	2100
	CONTAINER					
B	M620 SHIPPING AND STORAGE	FORWARD	FORWARD EDGE	360	410	2100
	CONTAINER					

Figure 4–11. Tiedown diagram for two M620 containers in CH–54 helicopter pod.

★ 4-3. Transport Inside the CH-47 Helicopter with the Helicopter Internal Cargo Handling System (HICHS) Installed

a. Description. The Helicopter Internal Cargo Handling System (HICHS) installed in the CH-47 helicopter will accept the US Air Force HCU-6/E pallet. The HCU–6/E pallet, part of the US Air Force 463L cargo system, is 88 inches wide and 108 inches long. The pallet has 22 tiedown rings, each rated at 7,500-pound capacity. The pallet will carry a load of 10,000 pounds, evenly distributed. The pallet weight with one M620 container and six MB–1 chain assemblies is 2,463 pounds (1117.2 kg).

b. Materials Required.

(1) *HCU-6/E pallet:* one for each M620 container to be transported.

(2) *Tiedown devices:* six for each M620 container to be transported. Tiedowns may be the authorized tiedown straps described in chapter 2, paragraphs 2-2a and b, or MB-1 chain assemblies, or equivalent. Do not mix straps and chains on the same pallet load.

(3) *Safety restraints:* two CGU-UB tiedown devices, or equivalent, for securing the pallet to the forklift.

(4) *Tape:* adhesive, 2-inch wide (NSN 7510-00-266-5016), or equivalent.

(5) *Forklift:* one, load-tested, 6,000-pound capacity, or greater.

(6) *Blocking shoring:* three pieces of 2- by 12-inch by 5-foot lumber, or equivalent,

NOTE

Place pallet on shoring or blocks for forklift pickup, and center the M620 container on the pallet with the container ends toward the narrow (88-inch) ends of the pallet (fig 4-12).

c. Procedures for Using MB-1 Chain Tiedowns.

(1) Inspect the MB-1 takeup assembly for damage or improper operation and replace the assembly if it is defective. Inspect the chain for deformed, cracked, or damaged links; corrosion; and excessive wear. Replace the chain if any of these conditions exist.

(2) Fully extend the hooks of the takeup assembly and attach them to the tiedown rings on the pallet (fig 4-13).

(3) Route the hook of the MB-1 chains through the M620 container tiedowdlift handles on the base section of the container (fig 4-12) and secure back to the chain.

(4) Pull the chains as tight as possible by hand and place a link of the chain into the chain recess in the takeup assembly.

(5) Close the chain recess and ensure that the locking latch is closed. To open the chain recess, release the quick-release lever and pull the recess open.

(6) Tighten all tiedowns, applying about equal tension to all chains. Tighten the takeup wheels on the takeup assembly by hand until the chains are tight. After the initial tightening, grab each chain in the center and pull back and forth. Retighten the takeup wheel by hand. During flight, check and tighten tiedowns as necessary.

(7) Tape loose ends of chains to tightened part of chain. Do not attach tape to takeup assembly or wrap loose chains around takeup assembly.

d. Procedures for Using CGU–1/B or Other Tiedown Straps.

(1) Attach the ratchet-end hook to the tiedown rings on the pallet (fig 4-13). Ensure that the ratchet handle is facing up.

(2) Attach the other tiedown hook to the M620 container tiedown/lift handles on the base section of the container. If the container tiedown/lift handles are too large for direct attachment of the tiedown snaphook, place a clevis on each tiedown/lift handle and attach the tiedown snaphook to the clevis.

(3) Tighten all tiedowns, applying about equal tension to all tiedowns.

e. Loading.

WARNING

The load must be secured to the forklift before the load is raised.

(1) Before raising the load, safety-tie the load to the forklift with two CGU–1/B tiedowns, or equivalent. One method of doing this is shown in figure 4-14.

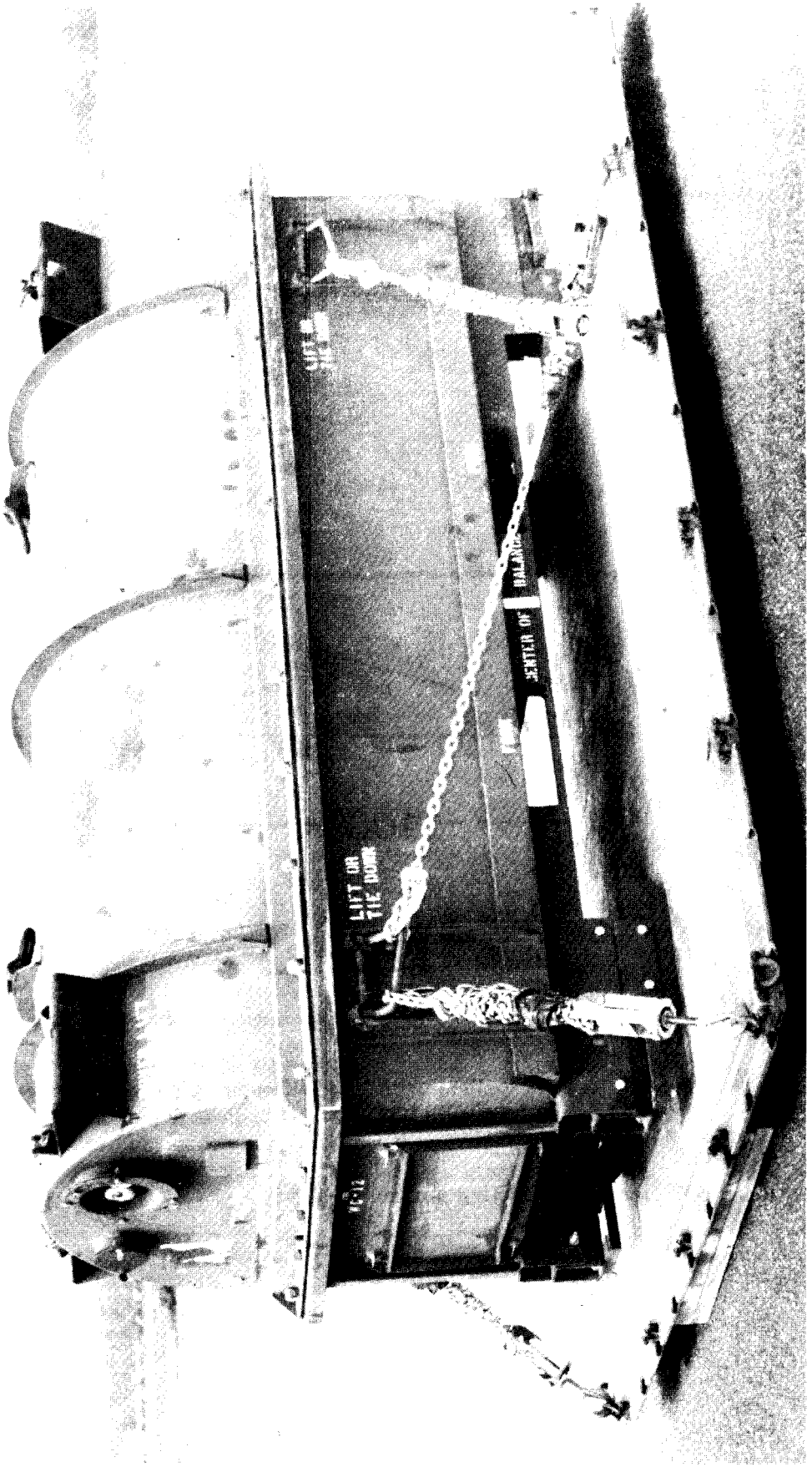
(2) Block underneath the helicopter cargo ramp with the three pieces of 2- by 12-inch by 5-foot blocking shoring.

(3) Carefully place the pallet on the helicopter cargo ramp. Ensure that the forklift tines do not rest on the HICHS rollers.

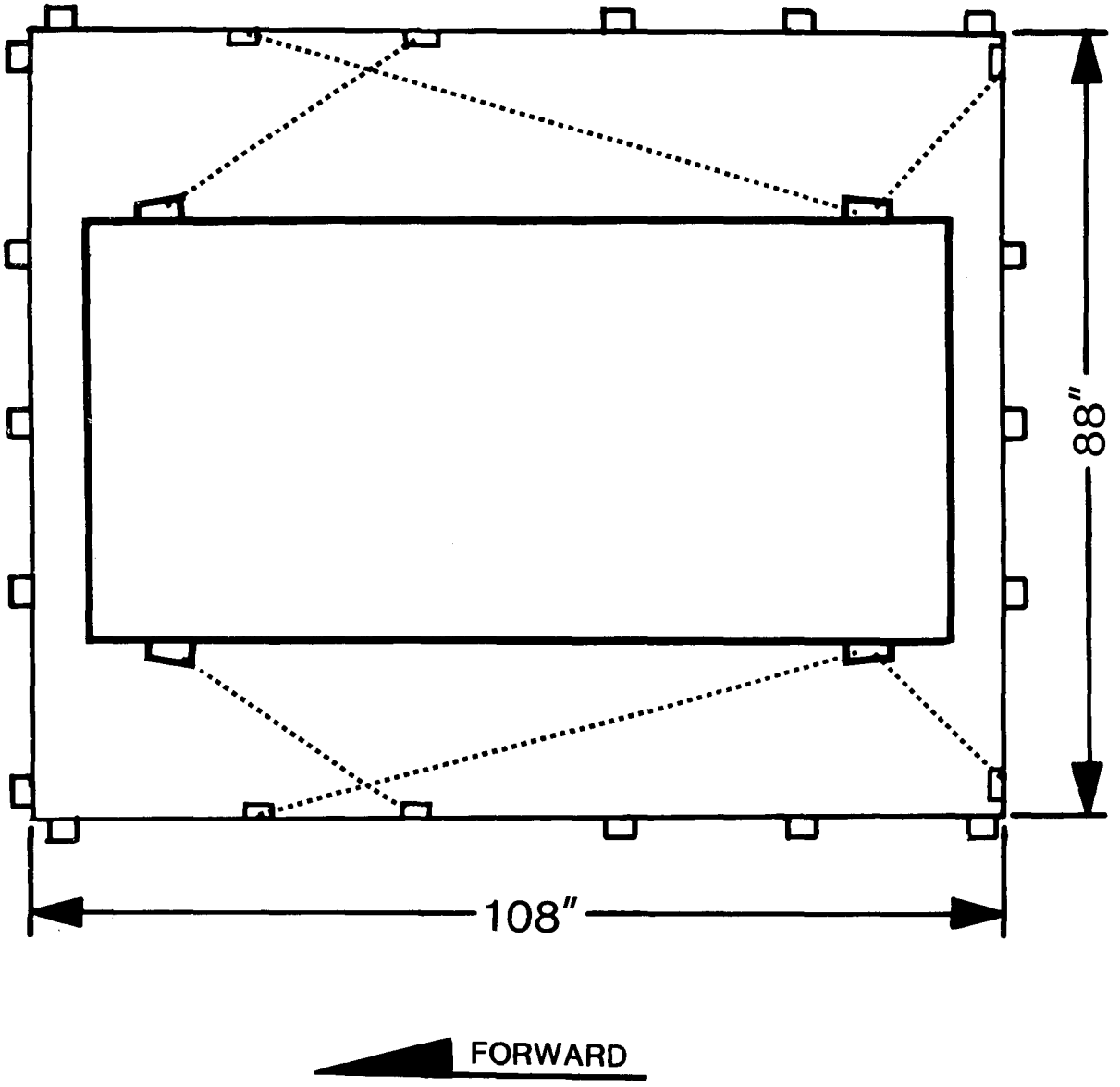
CAUTION

When approaching the helicopter with a forklift, use caution to prevent damage to the helicopter.

(4) Remove the safety ties, and winch or push the pallet off the forklift and to the tiedown location in the helicopter. Lock the pallet in place by inserting the HICHS lock through the HICHS siderail, thereby engaging a detent in the pallet. Use two locks per pallet (one on each side).



★ *Figure 4–12. M620 container tied down on HCU–6/E pallet. This load will be placed in the helicopter with the right end forward.*



★ *Figure 4–13. Tiedown diagram for M620 container on HCU–6/E pallet.*

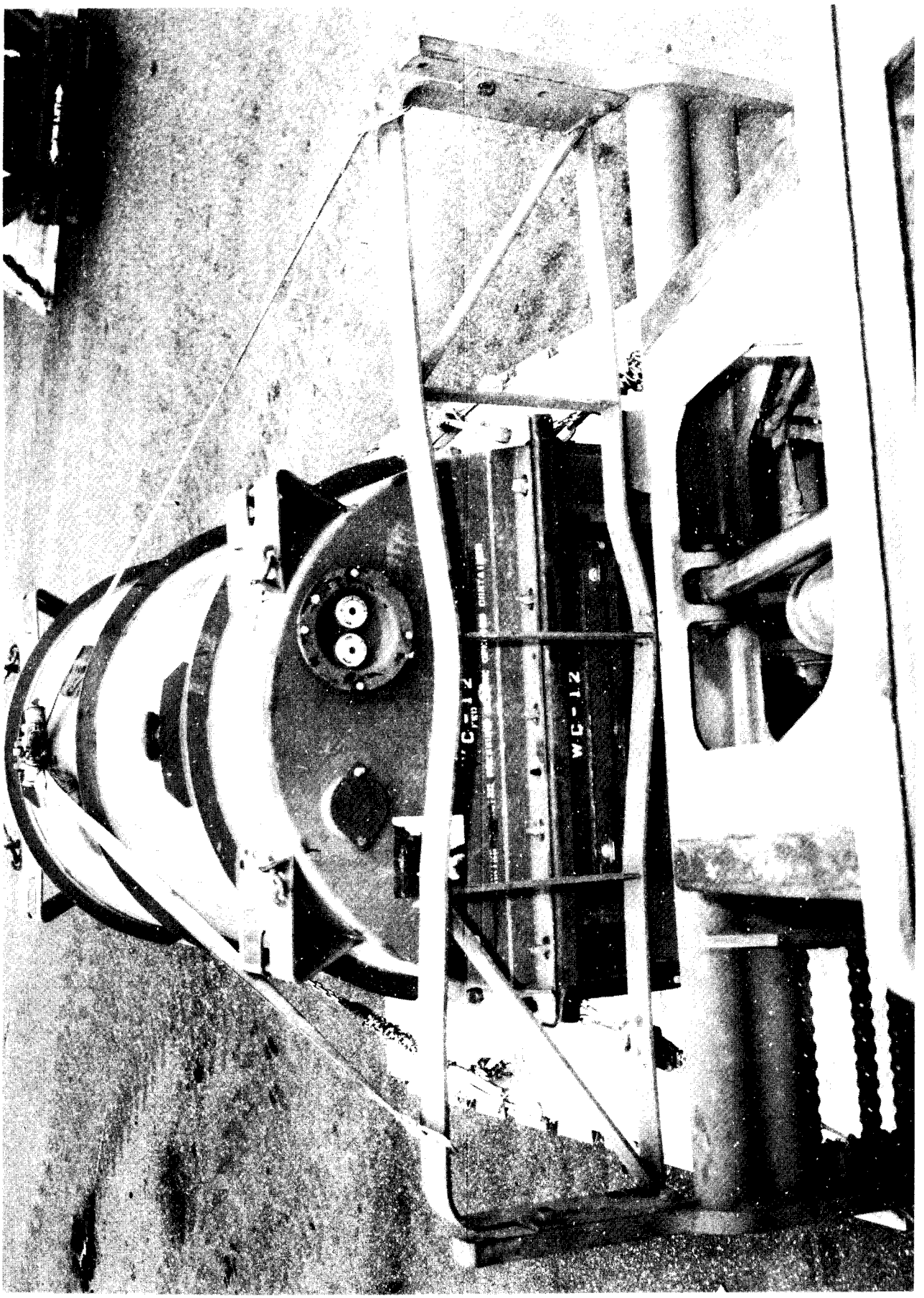
(5) Position either one or two pallets with M620 containers in the helicopter according to other cargo and/or weight and balance requirements.

f. Unloading.

(1) Position forklift with tines resting on the helicopter cargo ramp between the HICHS rollers.

(2) Push pallet aft until it is in position for forklift pickup, and attach the two safety straps.

(3) Remove pallet from helicopter with the forklift.



★*Figure 4-14. HCU-6/E pallet loaded with M620 container and secured to forklift.*

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APPENDIX
REFERENCES

A–1. Publication Indexes

Department of the Army pamphlets of the 310-series should be consulted frequently for the latest changes or revisions of references given in this appendix and for new publications relating to material covered in this manual.

A–2. Army Regulations (AR)

10-16	US Army Nuclear and Chemical Agency
40-14	Control and Recording Procedures for Exposure to Ionizing Radiation and Radioactive Materials
50-5	Nuclear Surety
(C)50-5-1	(C) Nuclear and Chemical Weapons and Materiel: Nuclear Surety (U)
55-203	Movement of Nuclear Weapons, Nuclear Components, and Related Classified Nonnuclear Materiel
95-1	Army Aviation: General Provisions and Flight Regulations
95-27	Operational Procedures for Aircraft Carrying Hazardous Materials
360-5	Public Information
385-40	Accident Reporting and Records
700-65	Nuclear Weapons and Nuclear Weapons Materiel
740-1	Storage and Supply and Activity Operations

A-3. Army Field Manuals (FM)

55-9	Unit Air Movement Plan
55-413	Aerial Recovery of US Army and Air Force Aircraft
55-450-1	Army Helicopter External Load Operations
100-50	Operations for Nuclear-Capable Units
101-20	US Army Aviation Planning Manual

A-4. Army Technical Bulletins (TB)

(SRD) 9-1100-811-40	Security Classification of Nuclear Weapons Information (U)
385-2	Nuclear Weapons Firefighting Procedures

A-5. Army Technical Manuals (TM)

5-315	Fire Fighting and Rescue Procedures in Theaters of Operations
9-1115-386-12&P	Operator and Organizational Maintenance, Including RPSTL, M266 Nuclear Warhead Section and M272 Training Nuclear Warhead Section
9-1300-206	Ammunition and Explosives Standards
38-250	Packaging and Materials Handling: Preparation of Hazardous Materials for Military Air Shipment

39-0-1A	Numerical Index to Joint Nuclear Weapons Publications (Including Related Publications) (Army Supplement)
(SRD) 39-20-7	Nuclear Safety Criteria (U)
(C) 39-20-11	General Firefighting Guidance(U)
39-45-51	Transportation of Nuclear Weapons Materiel
(SRD) 39-45-51A	Transportation of Nuclear Weapons Materiel (Supplement): Shipping and Identification Data for Stockpile Major Assemblies (U)
39-45-51C	Transportation of Nuclear Weapons Materiel (Supplement): Military Criteria for Shipment
(CRD) 39-50-8	Emergency Destruction of Nuclear Weapons (U)
55-450-18	Air Transport of Supplies and Equipment: Internal and External Loads, CH-47 Helicopter
55-1520-209-10	Operator's Manual: Army Model CH-47A Helicopter
55-1520-210-10	Operator's Manual: Army Model UH-lD/H and EH-lH Helicopters
55-1520-217-10-1	Operator's Manual: Army Model CH-54A Helicopters
55-1520-217-10-2	Operator's Manual: Army Model CH-54B Helicopters
55-1520-227-10-1	Operator's Manual: Army Model CH-47B Helicopter
55-1520-227-10-2	Operator's Manual: Army Model CH-47C Helicopter
55-1520-237-10	Operator's Manual: UH-60A Helicopter
55-1520-240-10	Operator's Manual for CH-47D Helicopter